

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Agricultural Sciences		
ACADEMIC UNIT	Biosystems & Agricultural Engineering		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	BAE_703	SEMESTER	7th
COURSE TITLE	DESIGN OF METAL STRUCTURES		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
Lectures	3		
Tutorials	2		
Laboratory	0		
TOTAL	5	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Background and Scientific Area		
PREREQUISITE COURSES:	There are no prerequisite courses.		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek. For Erasmus students in English		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> <p>This course aims to familiarize students with the characteristics, the behavior of deformation stresses, and the mechanical properties of the various qualities of structural steel used in structural members and joints for the design of steel structures.</p> <p>After the successful completion of the course, students will be able to understand:</p> <ul style="list-style-type: none"> • the characteristics, the behavior of deformation stresses, and the mechanical properties of the various grades of structural steel used in structural members and connections in relation to EN standards and Eurocode 3 • the provisions of Eurocode 1 for actions • the provisions of Eurocode 3 for members in tension and to design structural members of steel in tension • the provisions of Eurocode 3 for bending beams and designing steel beams under bending and shear • the provisions of Eurocode 3 for connections and design screw and welded connections
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- the provisions of Eurocode 3 for members in axial loading and to design columns for flexural bending due to axial compressive load and torsional flexural bending

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management
Adapting to new situations	Respect for difference and multiculturalism
Decision-making	Respect for the natural environment
Working independently	Showing social, professional and ethical responsibility and sensitivity to gender issues
Team work	Criticism and self-criticism
Working in an international environment	Production of free, creative and inductive thinking
Working in an interdisciplinary environment
Production of new research ideas	Others...

At the end of this course the student will have further developed the following general skills:
 Search for, analysis and synthesis of data and information, with the use of the necessary technology
 Adapting to new situations
 Decision-making
 Working independently
 Team work
 Production of new research ideas
 Respect for the natural environment
 Criticism and self-criticism
 Production of free, creative and inductive thinking

(3) SYLLABUS

- Metal structures (generally for steel structures, structural steels, deformation stress behavior, standards, Eurocode 3)
- Provisions of Eurocode 1 for actions in constructions
- Tensile members (limit strength condition as design criterion, clean and active cross section)
- Connection design (connections and connection means, screw connections, welded connections)
- Beam bending (design with marginal strength as a design criterion, bending arrows, shear)
- Column design.

Tutorial exercises

The tutorial exercises aim to familiarize students with concepts and methodologies that are analyzed in the theoretical part.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Lectures in the amphitheatre and laboratory exercises both in the laboratory and in the field.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<ul style="list-style-type: none"> Use of ICT (power point) in Teaching Use of ICT (power point) in Tutorial Training Use of ICT in Communication with students (Learning process support through the electronic platform e-class). 	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational</i>	Activity	Semester workload
	Lectures	39
	Tutorials	20
	Writing short reports of laboratory exercises- Exams	21

<i>visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Study hours and preparation for the laboratory exercises and the final examination	45
	Course total	125
<p align="center">STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>1. The examination in the theory of the course is done with a comprehensive questioner or a multiple-choice questioner that focus on the understanding of the course giving weight to the student's critical ability.</p> <p>3. Oral exams may take place in cases of students who have been exempted from the writing exams and always the same time and day as the writing exams.</p> <p>4. The above are done in the Greek language. For foreign language students (eg Erasmus students) conducted in English</p>	

(5) ATTACHED BIBLIOGRAPHY (In Greek)

- Suggested bibliography:

ΑΕΙΦΟΡΙΚΗ ΑΝΑΠΤΥΞΗ ΓΕΩΡΓΙΚΩΝ ΠΟΡΩΝ, 2017. Συγγραφείς: Χ. Δ. Αναγνωστόπουλος, Δ. Σ. Βερεσόγλου, Π. Α. Γεράκης, Κ. Λ. Καλμπουρτζή, Α. Π. Μαμώλος., ISBN 978-960-357-125-4

ΑΕΙΦΟΡΙΚΗ ΓΕΩΡΓΙΑ ΚΑΙ ΑΝΑΠΤΥΞΗ, 2011. Συγγραφείς: Γεώργιος Κ. Σιάρδος, Αλέξανδρος Ε. Κουτσούρης, ISBN:9789608065826

ΕΝΕΡΓΕΙΑ, ΠΕΡΙΒΑΛΛΟΝ ΚΑΙ ΑΕΙΦΟΡΟΣ ΑΝΑΠΤΥΞΗ. Κωδικός Βιβλίου στον Εύδοξο: 94645312, Έκδοση: 1η/2020. Συγγραφείς: Πολυζάκης Απόστολος. ISBN: 978-618-83590-6-2. Διαθέτης (Εκδότης): Πολυζάκης Απόστολος & ΣΙΑ ΕΕ

Life Cycle Assessment Student Handbook. Editor: Marry Ann Curran, Wiley 2015, ISBN: 978-1-119-08354-2

